South Carolina's

Urban Tree Care Book

How to Grow Healthy, Beautiful Trees in the Urban Environment

The South Carolina Forestry Commission is ready to assist you in caring for your trees. If you need us, please call.

S.C. FORESTRY COMMISSION
PO BOX 21707
COLUMBIA, SC 29221

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produced for you by the
South Carolina
Forestry Commission

the South Carolina Urban

Tree Care Book

People Need Trees!

People NEED trees. They cool our cities on sweltering summer days, give us oxygen to breathe, filter pollutants from the air, hold our soil in place, provide food and homes for birds and other wildlife, and beautify the landscape. But trees need people, too!

Many people think that trees will grow and be healthy without our help, but for trees to thrive, we must care for them. Start by selecting the right species of tree to plant on the site, plant the tree properly, then provide timely maintenance throughout its life.

For information on selecting the right species of tree and a listing of species which perform well in South Carolina, refer to the South Carolina Forestry Commission's "Tree Selection Guide". The techniques of tree planting and tree care are explained in this guide.

PLANTING

Whenever possible, schedule your planting during the dormant season, when trees are not actively growing. Dormancy is from the time trees shed their leaves in fall until new growth appears in spring. Fall planting is best since the roots have more time to become established before leaves emerge. Planting may be extended through spring if trees are watered regularly.

Current techniques for tree planting require preparation of a large planting bed with favorable conditions for root growth. Using a shovel or tiller, loosen the soil to a depth of 12 inches in an area three times the diameter of the root ball. Organic matter such as compost or peat moss may be mixed throughout the planting bed at this time, if needed.

Dig a shallow hole in the middle of the bed so that the top of the root ball will sit level with or

Prepared Planting Bed with properly placed root ball.

slightly higher than the surrounding ground. Remove wires and ropes from balled and burlapped trees, and also the "fabric" if it is made from a material that will not decay. Lift containerized plants from the pot, then cut any circling roots by making four or five vertical slits along the sides of the rootball. Be careful to keep roots from drying out.

Place the tree in the shallow hole. Backfill with soil from the planting area, watering and firming to settle air pockets. Mulch with

bark, leaves, wood chips or pine straw 3 to 4 inches deep to conserve moisture and reduce weed growth. Be sure that the mulch does not touch the tree trunk.

Organic fertilizers, such as cow manure, or fertilizers with little or no nitrogen may be used at planting, but those with a significant nitrogen content should not be used until one year after planting. Chicken manure is also quite high in nitrogen and may damage the tree.

Do not prune except to remove dead or broken branches. Staking is only necessary if the tree starts to lean or is subject to high winds. Stake with soft, flexible ties but not so tightly that the tree cannot bend with the wind. Be sure to remove the ties at the end of one growing season.

WATERING

The limiting factor for tree growth is often lack of adequate water. Water newly planted trees every week to ten days, unless there is sufficient rainfall, during the first two growing seasons. Established trees should be watered at the first sign of wilting or when the top 12" of soil is dry.

A good slow soaking over several hours is best, and may be done with an oscillating sprinkler or a soaker hose, starting at the trunk and extending beyond the furthest branch spread. Don't overwater - too much water can kill a tree by eliminating the air from the soil. The soil should not stay saturated, but have time to dry out between waterings.

FERTILIZATION

Fertilization aids in maintaining tree vigor, promoting new growth, and overcoming insect, disease, or wound problems. Small, yellow-green leaves, sparse foliage, or leaves dropping early may be indicators of the need for fertilization. Fertilization is not a "cure-all" for declining trees, but may be used to complement other tree maintenance activities.

The ideal time to fertilize is late winter or early spring just before the leaves begin expanding. Fertilization may continue until mid-July. Avoid fertilization late in the growing season which may stimulate a flush of new growth that would be susceptible to damage by an early frost.

Fertilizer should always be applied to moist soil to improve uptake and to reduce the chance of root injury. If soil is dry, irrigate prior to fertilization.

APPLICATION RATE:

A soil test is best for determining the amount of fertilizer to apply, especially in coastal areas where soils may be high in phosphorus. For most areas, the following guidelines based on the distance to the edge of the branches may be used for fertilizing established trees:

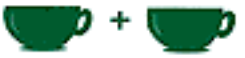
STEP 1 Measure the distance from the trunk to the edge of the branch spread; this is the crown radius.

Crown Radius = distance from edge of branch spread to trunk.

FERTILIZER APPLICATION RATE

Crown Radius (feet)	BEST Pounds 18-5-11 to apply	GOOD Pounds 16-4-8 to apply	Acceptable Pounds 12-6-6 to apply
0-5	1	1.5	2
10	5	6	8
15	12	13	18
20	21	24	31
25	33	27	49
30	47	53	71
35	64	72	96
40	84	94	126
45	106	119	156
50	131	147	196
55	158	178	237
60	188	212	283

If using a slow release fertilizer, use twice the indicated amount and apply it every ***two years.***



ONE POUND OF FERTILIZER IS APPROXIMATELY TWO CUPS.

STEP 2 Use the table on the opposite page to determine the amount of fertilizer to apply. Find the crown radius in the left column, then look in the appropriate column for the type of fertilizer that you are using to determine how many pounds of the fertilizer to apply. An 18-5-11 type fertilizer would have the best ratio of Nitrogen-Phosphorus-Potassium, 16-4-8 is considered good, and 12-6-6 is acceptable.

If the area under the branches is restricted by sidewalks or driveways, or the root system has been damaged by construction, the rate should be reduced by an equal percentage to avoid damage to the tree.

METHOD:

Apply fertilizer to the soil surface, starting 2 to 3 feet from the trunk and extending several feet beyond the furthest branch tip. If the soil is compacted or grass is present, drill holes in the soil to apply the fertilizer.

The drill hole method requires that holes be dug in a 2 foot by 2 foot grid pattern starting 2 to 3 feet from the trunk and extending slightly beyond the edge of the branches. Holes should be 8-12" deep and 1-2" in diameter, and may be made with a fertilizing auger, pipe, broom handle or tire tool. To avoid damaging the roots, mix fertilizer with an equal amount of peat or other organic material and stay at least 6" from small plants. The total amount of fertilizer should be divided evenly among the holes. The increased amount of air available to the roots is often as beneficial as the fertilizer.

WARNING

Use of lawn fertilizers which contain herbicides for broadleaf weed control will cause tree damage or mortality. Do not use herbicide type fertilizers or soil sterilants in the area beneath the branches of trees.

Arborists frequently apply liquid fertilizer through a probe into the soil which results in faster uptake by the trees, and a more visible response. Injecting or implanting fertilizer into the trunk is useful for specific nutrient deficiencies or where root area is limited. Since injection and implants require holes

to be drilled into the tree, their use should be limited to special applications.

PRUNING

Pruning is probably the most neglected tree maintenance practice, yet it's vital to tree health. Pruning adds strength, beauty and value to trees.

Avoid the need for excessive pruning by planting the right species. Begin to prune while the tree is young, removing problems while they are small. Pruning of large trees which requires climbing or the removal of heavy limbs should be left to skilled arborists.

What to prune:

• Dead, diseased, or broken branches are hosts for decay organisms and should be removed promptly. When pruning

diseased branches, dip the pruners in household bleach or rubbing alcohol before storing or making the next cut.

• Double leaders or branches that fork at a narrow angle are more likely to split. Ideally, the branch angle should be at 10 or 2 o'clock. When pruning, leave branches with wide angles.

Remove the defective or crooked fork.

•Reduce the weight of long, heavy horizontal branches which are more likely to break, especially those over your home or where property damage or personal injury is likely to occur.

• Remove nuisance growth. Prune to remove low limbs over sidewalks and roads which limit their use or present a safety hazard. Remove branches that may interfere with utility lines in the future.

• Remove sprouts and suckers at the base of the tree or inside the crown that are upright and grow rapidly.

Cut sprouts next to limb

When to prune:

The best time to prune live limbs is during late winter or early spring before leaves emerge. Avoid pruning when leaves are expanding since this is more likely to cause heavy bleeding. Prune dead and dying limbs as soon as you notice them; prompt pruning prevents the spread of decay and cavity development.

Flowering and fruiting can be encouraged through pruning. Trees that bloom in spring (dogwood and flowering fruit trees) should be pruned when flowers fade. Trees that bloom in summer (crape myrtle) should be pruned during the winter.

How to prune:

- ***Step 1*** Cut the branch from underneath about a foot from the trunk to prevent stripping or peeling the bark off.

Correct Steps for Pruning

- ***Step 2*** A couple inches further from the main trunk, make the cut from the top down to remove the branch.

- ***Step 3*** Locate the branch collar, a layer of wrinkled bark where the branch attaches to the trunk. Make the final cut just outside of the branch collar, at a slight downward and outward angle. Do not cut into the collar or leave a stub.

When shortening a small branch, prune just outside of a bud or another branch that faces the direction of desired growth, usually towards the outside of the crown. One-handed pruning shears with curved blades work best on small limbs; use a saw for larger ones.

Avoid making a cut that leaves a wound over 4" in diameter since these take longer to callus over. *Do not paint the pruning cut.* Research shows that wound dressings are not effective in preventing decay or rot.

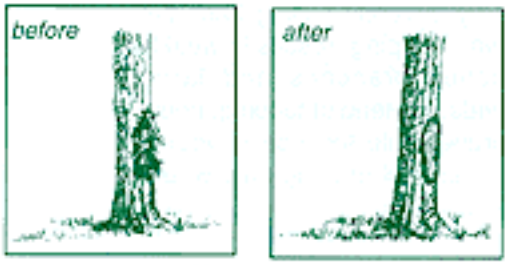
Never remove over one-third of the crown at one time. This ensures that the tree always has enough leaves to manufacture its food.

Warning

DON'T TOP TREES. "Topping" is the reduction in size of a tree by severely cutting back the crown. Topping results in weakly attached branches and large wounds. Instead of topping, begin to prune while the tree is young, and make all pruning cuts where branches fork.

Wounds, Cavities, Cables & Bracing

Wounds are openings in the bark that expose trees to insect and disease attack. Be careful not to wound trees with lawn mowers, string-type weed trimmers, vehicles or heavy equipment, improper pruning, or any other cause.



If trees are wounded, remove all loose bark and cut off any wood protruding from the wound. As when pruning, there is no need to paint the wound, since this has not been proven to prevent decay. Stimulate tree growth by fertilizing, watering, and pruning - this will help the wound to callus rapidly.

Prevent cavities from developing by pruning out dead, diseased or broken limbs. Filling cavities will not stop decay from spreading, or strengthen a tree. Filling a cavity may provide support for callus tissue so it will not "roll" inward. Generally, it's best to leave cavity work to trained arborists. If a cavity has structurally weakened a tree, support from cables or mechanical rods may be needed. Branches with cavities should be removed if the natural shape of the tree can be maintained.

Cable bracing is the use of flexible steel support cables in or between trees to prevent breakage of branches weakened by decay, narrow forks, large, heavy limbs or breakage during high winds. Avoid the need for cable bracing by pruning as the tree grows. Rod bracing should be used where decay has

developed, where a fork has split, or to hold rubbing branches together or apart. Cable and rod bracing are recommended for high value trees where personal injury or property damage is likely, and should be left to professionals.

Insect and Disease Pests

Insect and disease pests often attack trees which are already under stress or weakened. Drought, improper planting, and disturbance of the root system through digging or addition of soil to the root area can make trees more susceptible to attack. Find out why the tree is weak and treat the primary cause of stress.

Examine your trees regularly, looking for anything out of the ordinary: sap coming out of the bark, bark falling off, decaying wood, holes in the bark or leaves, leaves changing color early, and swellings or sunken areas on branches or the trunk. Mushrooms at the base of a tree can indicate root rot. Try to identify the cause of the symptom. Not all pests require control measures, and some have no practical control.

Always identify the pest before applying "sprays" to control it. A good fungicide will never control an insect population. If you cannot diagnose a problem, get professional assistance from a local nurseryman, professional arborist, the SC Forestry Commission, or Clemson University Cooperative Extension Service.

Trees and People Need Each Other

For trees to thrive, they need people. People can choose the right species of tree to plant on a site and give their tree a good start by providing a favorable environment for the root growth. They can water trees in times of drought, provide nutrients for growth, prune to remove potential problems, and be alert to environmental changes.

Planting and caring for trees gives people a chance to do something of global importance that will continue to improve their environment long after they're gone. People surround their homes with trees - trees make people feel they are a part of nature; trees add stateliness and stature to homes and provide feelings of inner peace.

Trees and People need each other,

for today and
for tomorrow!

Trees can't protect themselves,
People can.

Trees can't move for better living conditions,
People can.

Trees can't prevent pollution,
People can.

Trees by themselves can't move during their lifetime,
People can.

People can't produce oxygen,
Trees can.

People can't filter noise,
Trees can.

People can't cool the globe,
Trees can.

South Carolina Forestry Commission

Regional Offices/ Urban Foresters

Urban Forestry Coordinator (803) 896-8864
S.C. Forestry Commission
P.O. Box 21707
Columbia, SC 29221

Pee Dee Regional Office (843) 662-5571
P.O. Box 1765
Florence, S.C. 29503

Pee Dee Urban Forester (803) 425-5437
P.O. Box 457
Camden, S.C. 29020

Coastal Regional Office (843) 538-3708
413 Sidneys Road
Walterboro, S.C. 29488

Coastal Urban Forester (843) 529-9020
1615 Remount Road
N. Charleston, S.C. 29406

Piedmont Regional Office (864) 276-0205
39 General Henderson Road
Newberry, S.C. 29108

Piedmont Urban Forester (864) 374-7111
1803 Dixie Drive
Hodges, S.C. 29653

S.C.F.C. web site: www.state.sc.us/forest